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Application Number	10/782,134
Filing Date	February 18, 2004
First Named Inventor	John Santhoff et al.
Art Unit	2616
Examiner Name	Afsar M. Qureshi
Attorney Docket Number	00120

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
  - ☐ Fee Attached
- ☐ Amendment/Reply
  - ☐ After Final
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm Name	Pulse~LINK, Inc.		
Signature			
Printed name	Peter R. Martinez		
Date	June 18, 2008	Reg. No.	42,845

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	John Santhoff et al.	Group Art Unit:	2616
		Examiner:	Afsar M. Qureshi
Serial No.:	10/782,134	Confirmation No.:	5198
Filed:	February 18, 2004		
For:	ULTRA – WIDEBAND COMMUNICATION PROTOCOL		

Carlsbad, California
June 18, 2008

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY BRIEF

Dear Sir/Madam:

This brief is submitted under 35 U.S.C. § 134 and is in accordance with 37 C.F.R. Parts 1, 5, 10, 11, and 41, effective September 13, 2004 and published at 69 Fed. Reg. 155 (August 2004). This reply brief is further to the April 25, 2008, Examiner's Answer, and is mailed within two months of that date.

Table of Contents

(1) Real Party in Interest

The real party in interest is Pulse-Link, Inc.

(2) Related Appeals/Interferences

No other appeals or interferences exist which relate to the present application or appeal.

(3) Status of Claims

Claims 7-20 are pending and rejected, and claims 1-6 have been withdrawn under a restriction requirement.

(4) Status of Amendments

No amendments are outstanding.

(5) Summary of Claimed Subject Matter

As an initial matter, it is noted that according to the Patent Office, the concise explanations under this section are for Board convenience, and do not supersede what the claims actually state, 69 Fed. Reg. 155 (August 2004), see page 49976. Accordingly, nothing in this Section should be to change (e.g., broaden, narrow) the scope of the claims by the process of claim interpretation, prosecution history estoppel or in any other manner, for purposes of this appeal and/or subsequently to this appeal.

As set forth in independent claims 7 and 16, one embodiment of the invention provides a system for ultra-wideband communication that employs a first data frame that transmits data at a first data rate, a second data frame that transmits data at a second data rate, where both the first and second data frames are transmitted pseudo-randomly. For example, in one embodiment, the first data frame is intended for an ultra-wideband receiver that only needs data transmitted at a low data rate (i.e., the first data rate). The second data frame is intended for an ultra-wideband receiver that needs data transmitted at a high data rate (i.e., the second data rate). **To avoid generating clusters of energy at specific frequencies that may cause interference with conventional narrowband receivers, the first data frame and the second data frame are transmitted using a pseudo-random sequence, which eliminates the energy clusters.**

This embodiment ultra-wideband communication system as claimed firstly enables communication between ultra-wideband devices at different data rates, and secondly, enables

variable data rate communication while in the presence of conventional narrowband receivers.

As set forth in independent claim 17, a second embodiment of the invention provides an ultra-wideband communication device that includes a transceiver structured to communicate at a first data rate and a transmitter structured to transmit at a second data rate that is greater than the first data rate. That is, the transceiver includes both a transmitter and a receiver that, for example, transmit and receive data at a lower data rate. But the transmitter only transmits data at a higher data rate, and does not include a receiver. **This embodiment enables an ultra-wideband communication device to use the lower data rate transceiver to "log on" or otherwise communicate with another device or network, and then transmit data at a higher data rate using the transmitter. Eliminating a high data rate receiver minimizes power consumption and manufacturing cost, yet the ultra-wideband device can still transmit data quickly, for example, when downloading a video from a camcorder to a computer or television.**

As discussed in Applicant's specification (pages 9-11) and in the Scientific American and Microwave Journal articles attached in Appendix B, ultra-wideband (UWB) communication technology is "vastly different" from conventional technology that employs substantially continuous carrier waves (quoted directly from the Microwave Journal). However, once UWB is deployed, it will operate alongside conventional narrowband communication technologies. **The present invention provides a system that enables communication between ultra-wideband devices at different data rates, while also avoiding interference with devices employing conventional narrowband communication technologies.**

(6) Grounds of Rejection to be Reviewed on Appeal

Whether claims 7-20 are unpatentable under U.S.C. § 103(a) as being obvious in light of published U.S. patent application 2003/0189975 ("Fullerton") in view of U.S. patent 5,535,239 ("Padovani").

(7) Response to Examiner's Answer

A fundamental requirement of a *prima facie* case of obviousness is that the cited references must teach or suggest all claim elements. Put differently, a "mere statement that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness." M.P.E.P. 2143.01(IV). In this case, the Examiner doing exactly what is expressly prohibited.

Both of Applicant's independent claims 7 and 16 recite, in part, ". . . transmitting both the first and second data frames in a pseudo-random method."

Applicant's Appeal Brief described how neither of the Examiner's cited references, alone or in combination, taught or suggested the above claim element. This has also been Applicant's position in his Responses to the Examiner's Office Actions.

Finally, in the Examiner's Answer, in the Response to Arguments section, the Examiner admits that Padovani only teaches "pseudorandom positioning in each data frame." The Examiner then uses his own hindsight perspective, under the guise of "one skilled in the art" to find the missing claim element: **"One skilled in the art would readily realize that these frames with pseudorandom positioning will be transmitted in pseudorandom method."**

A few sentences later, the Examiner asserts his hindsight perspective again, totally unsupported by any reference: **"Again, any frame with pseudorandom positioning of data**

(Padovani) is being transmitted using pseudorandom time sequence, which is well known in the art."

The M.P.E.P. requires the Examiner to provide a reference that teaches or suggests this "well known in the art" claim element. But, the Examiner has failed to do so, thereby also failing to meet the most basic requirement of a *prima facie* case of obviousness.

Now moving on to independent claim 17 that recites, in part:

> a **transceiver** structured to **communicate** at a first data rate; and
> a **transmitter** structured to **transmit** at a second data rate that is greater than the first data rate.

The Examiner states in the Response to Arguments section:

> "However, Padovani discloses a transceiver 10 and a transmitter within the structure (see figure 1) transmitting different data rates via access channel and primary traffic channel. A transmitter 56 within has frequency upconverters. **It would have been obvious to one of ordinary skill in the art that this equipment can be utilized/modified to carry data at a desired rate."**

First, the Examiner is **mischaracterizing** the Padovani reference, and second, **the Examiner is again using own hindsight perspective, under the guise of "one of ordinary skill in the art" that the equipment can "carry data at a desired rate," which is not claimed by Applicant. Thus, the Examiner again fails to present a *prima facie* case of obviousness.**

The Examiner cites Padovani's FIG. 1 for teaching a "transceiver 10 and a transmitter within the structure." However, FIG. 1 is described as "a transmitter portion of a transceiver" (col. 3, lines 37-38). "Referring now to the drawings, FIG. 1 illustrates an exemplary embodiment of a transmit

portion 10 of a CDMA mobile station transceiver" (col. 4, lines 13-15). A "transceiver" includes both a transmitter and a receiver. Applicant's claim 17 is claiming both a transceiver and a transmitter, as shown in Applicant's FIG. 6. However, Padovani only teaches a transceiver, and FIG. 1 only illustrates the transmitter portion. Therefore, Padovani fails to teach or suggest Applicant's claimed structure.

Because Padovani fails to teach the claimed transceiver and transmitter, it is impossible for Padovani to teach or suggest the claimed first and second data rates that are associated with each element.

The Examiner's errant methodology is clear: Instead of finding references that teach all the elements recited in a rejected claim, an expedient "well known in the art" or "obvious to one skilled in the art" statement is provided. However, this is expressly prohibited by the M.P.E.P.

Conclusion

For all of the reasons set forth above, Applicant respectfully submits that the rejection of claims 7-20 should be reversed. A Notice of Allowance is earnestly solicited.

Respectfully submitted,

Peter Martinez
Attorney for Applicant, Pulse-Link, Inc.
Reg. No. 42,845

APPENDIX A - APPEALED CLAIMS

1. (withdrawn) An ultra-wideband communication method, the method comprising the steps of:

determining a radio frequency band for communication;

mapping any electromagnetic signals present in the determined radio frequency band; and

transmitting a plurality of ultra-wideband pulses in the determined radio frequency band.

2. (withdrawn) The method of claim 1, wherein the step of mapping electromagnetic signals comprises analyzing any electromagnetic signals present in the determined radio frequency band.

3. (withdrawn) The method of claim 1, further comprising the step of transmitting a plurality of ultra-wideband pulses in another radio frequency band if transmitting in the determined radio frequency band would cause substantial interference to any electromagnetic signals present in the determined radio frequency band.

4. (withdrawn) The method of claim 1, wherein the determined radio frequency band may range from about 1 gigahertz to about 10 gigahertz.

5. (withdrawn) The method of claim 1, wherein each of the plurality of ultra-wideband pulses has duration that ranges from about ten picoseconds to about one millisecond.

6. (withdrawn) A ultra-wideband communication method, the method comprising the steps of:

means for determining a radio frequency band for communication;

means for mapping any electromagnetic signals present in the determined radio frequency band; and

means for transmitting a plurality of ultra-wideband pulses in the determined radio frequency band.

7. (original) An ultra-wideband communication method, the method comprising the steps of:

generating a first data frame, constructed to transmit data at a first data rate;

generating a second data frame, constructed to transmit data at a second data rate; and

transmitting both the first and second data frames in a pseudo-random method.

8. (original) The method of claim 7, wherein the pseudo-random method comprises transmitting the first and second data frames so as to substantially avoid generating a spectral line.

9. (original) The method of claim 7, wherein the pseudo-random method comprises transmitting the first and second data frames by using a pseudo-random timing sequence.

10. (original) The method of claim 7, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse.

11. (original) The method of claim 7, wherein the first data frame transmits data at a rate that ranges between about one kilobit per second to about five megabits per second.

12. (original) The method of claim 7, wherein the second data frame transmits data at a rate that ranges between about five megabits per second to about one gigabit per second.

13. (original) The method of claim 7, wherein the second data frame transmits data at a rate selected from a group consisting of: a 25 megabit per second rate, a 50 megabit per second rate, a 100 megabit per second rate, a 200 megabit per second rate, a 400 megabit per second rate, a 480 megabit per second rate, a 500 megabit per second rate, and a one gigabit per second rate.

14. (original) The method of claim 7, wherein the first and second data frames each comprise a time duration that may range from about one microsecond to about one millisecond.

15. (original) The method of claim 7, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse, wherein the ultra-wideband pulse may range in duration from about 10 picoseconds to about one nanosecond.

16. (original) An ultra-wideband communication method, the method comprising the steps of:

means for generating a first data frame, constructed to transmit data at a first data rate;

means for generating a second data frame, constructed to transmit data at a second data rate; and

means for transmitting both the first and second data frames in a pseudo-random method.

17. (original) An ultra-wideband communication device, comprising:

a transceiver structured to communicate at a first data rate; and

a transmitter structured to transmit at a second data rate that is greater than the first data rate.

18. (original) The ultra-wideband communication device of claim 17, wherein the transceiver communicates by receiving and transmitting at the first data rate, and the transmitter transmits at the second data rate.

19. (original) The ultra-wideband communication device of claim 17, wherein the first data rate transmits data at a rate that ranges between about 1 kilobit per second to about 5 megabits per second.

20. (original) The ultra-wideband communication device of claim 17, wherein the second data rate transmits data at a rate that ranges between about 5 megabits per second to about 1 gigabit per second.

APPENDIX B - EVIDENCE

None (this sheet made necessary by 69 Fed. Reg. 155 (August 2004), page 49978.)

APPENDIX C - RELATED PROCEEDINGS

None (this sheet made necessary by 69 Fed. Reg. 155 (August 2004), page 49978.)